

CLAIMS

1. An image processing method of eliminating a second line-shaped image object, which overlaps with a first image object in one image comprising effective or ineffective pixels, from the first image object, the method comprising the respective steps of:

a line segment extraction step for extracting a line segment from the second line-shaped image object by a line segment extraction means;

an elimination step for eliminating the second line-shaped image object from the first image object by a line-shaped image elimination means;

a pixel extraction step for scanning a vicinity region of the line segment on the first image object and sequentially extracting pixels to be scanned by an image scan means;

an effective pixel determination step for determining whether or not the extracted pixels to be scanned are effective pixels by an effective pixel determination means; and

a pixel interpolation step for dropping a perpendicular from the pixels to be scanned that are determined to be the effective pixels at the effective pixel determination step to a nearest line segment and setting all the pixels on the

perpendicular as the effective pixels by a pixel interpolation means.

2. An image processing method according to claim 1, wherein the image is one frame in a moving image comprising a plurality of frames.

3. An image processing method according to claim 1, wherein the image is an image obtained by subjecting a single frame or plural frames in the moving image comprising the plurality of frames to predetermined arithmetic processing.

4. An image processing method according to claim 3, wherein the arithmetic processing is any one of processing for determining a difference between two arbitrary frames in the moving image or processing for determining a change region in one arbitrary frame in the moving image.

5. An image processing method according to claim 4, wherein the processing for determining the change region in the one arbitrary frame in the moving image is processing for extracting predetermined frames before and after the one frame and obtaining difference images between each predetermined frame and the one frame, respectively as well

as executing an ANDing operation of both the difference images.

6. An image processing method according to claims 1 to 5, wherein a line segment is extracted using the Hough transform at the line segment extraction step.

7. An image processing apparatus for eliminating a second line-shaped image object, which overlaps with a first image object in a single image comprising effective or ineffective pixels, from the first image object, the apparatus comprising:

a line segment extraction means for extracting a line segment from the second line-shaped image object;

a line-shaped image elimination means for eliminating the second line-shaped image object from the first image object;

an image scan means for scanning a vicinity region of the line segment on the first image object and sequentially extracting pixels to be scanned;

an effective pixel determination means for determining whether or not the extracted pixels to be scanned are effective pixels; and

a pixel interpolation means for dropping a perpendicular from the pixels to be scanned that are

determined to be the effective pixels at the effective pixel determination step to a nearest line segment and setting all the pixels on the perpendicular as the effective pixels.

8. An image processing apparatus according to claim 7 comprises a frame extraction means for extracting one frame from a moving image comprising a plurality of frame and uses one frame extracted by the frame extraction means as an image.

9. An image processing apparatus according to claim 7 comprises a frame extraction means for extracting a single frame or a plurality of frames from a moving image comprising a plurality of frames and a frame arithmetic processing means for subjecting an extracted frame to predetermined arithmetic processing and uses a result of the arithmetic processing as the image.

10. A image processing apparatus according to claim 9, wherein the frame arithmetic processing means executes any processing of processing for determining a difference between two arbitrary frames in the moving image and processing for determining a change region in one arbitrary frame in the moving image.

11. An image processing apparatus according to claim 10, wherein, the processing executed by the frame arithmetic processing means to determine the change region in the one arbitrary frame is processing for extracting predetermined frames before and after the one frame and obtaining difference images between each predetermined frame and the one frame, respectively as well as executing an ANDing operation of both the difference images.

12. An image processing apparatus according to claims 7 to 11, wherein the line segment extraction means extracts a line segment using the Hough transform.